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Using Big Data in public procurement to detect corruption&collusion risks

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Two points

TOOLS

There are analytical tools to measure corruption in procurement.

APPLICATIONS

Major ways these tools can be used.

PART I –

Tools



Range of tools available

- Corruption
 - Red flags
 - Government favouritism
 - Political ties
- Inter-bidder collusion
 - Fake competition
 - Disappearing bidders from a market



Using what data?

- Tender-level administrative dataset
- Sources
 - National procurement portals
 - EU's Tenders Electronic Daily
 - Development Agencies' portals
- 2009 onwards
- Data scope&quality are BIG issues!



What kind of corruption?

In public procurement, the aim of [institutionalised] corruption is to steer the contract to the favored bidder without detection. This is done in a number of ways, including:

- ***Avoiding competition*** through, *e.g.*, unjustified sole sourcing or direct contracting awards.
- ***Favoring a certain bidder*** by tailoring specifications, sharing inside information, *etc.*

See: World Bank Integrity Presidency (2009) Fraud and Corruption. Awareness Handbook, World Bank, Washington DC. pp. 7.



„Red flags’ for measuring corruption risks in PP

1. *Single bid submitted*

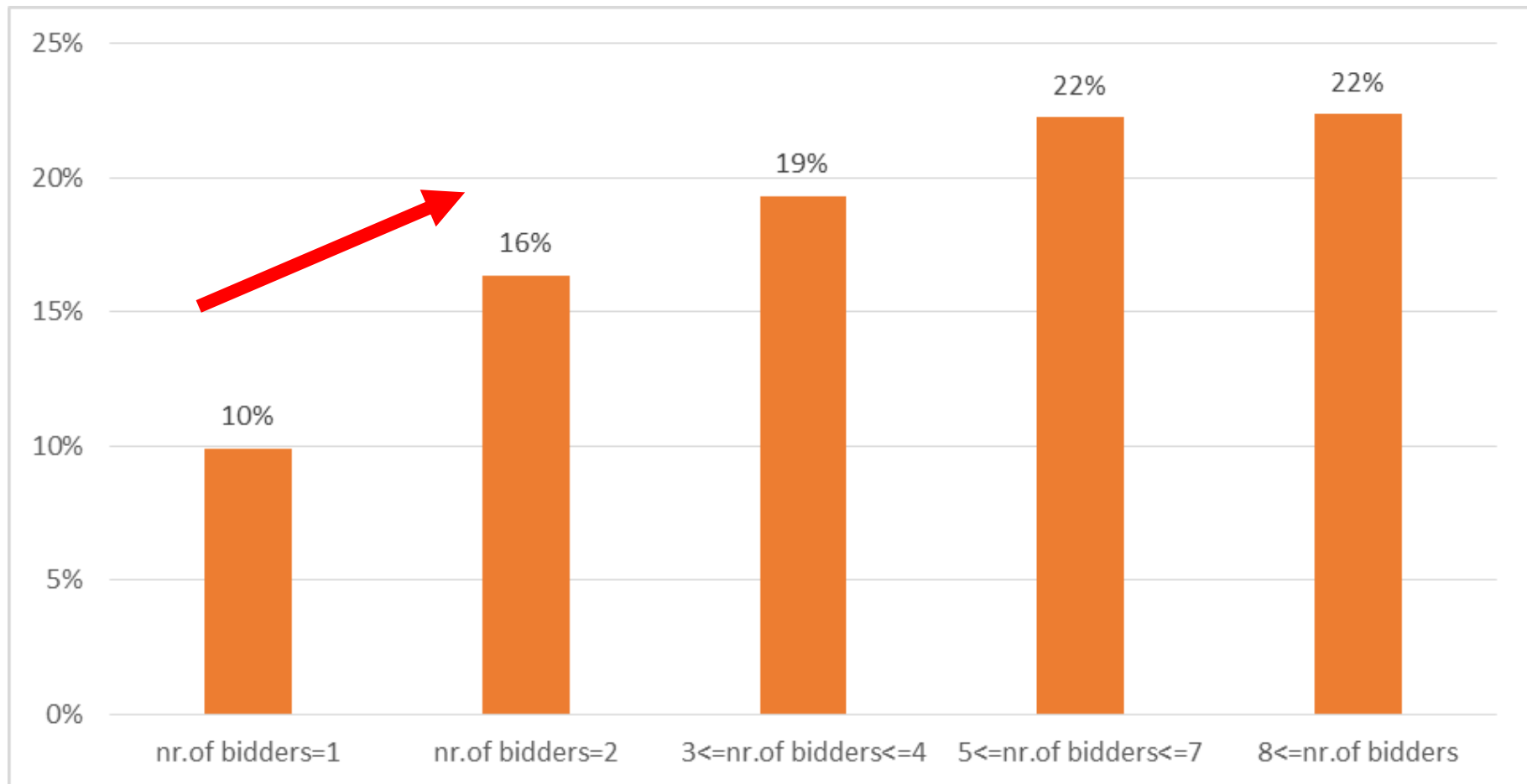
2. *Winner's contract share*
3. Call for tender publication in OJEU
4. Procedure type
5. Length of advertisement period
6. Weight of non-price evaluation criteria
7. Length of decision period
8. Call for tenders modification
9. Annulled procedure re-launched subsequently
10. *Contract modification*
11. *Contract value/duration increase* →

Corruption Risk Index

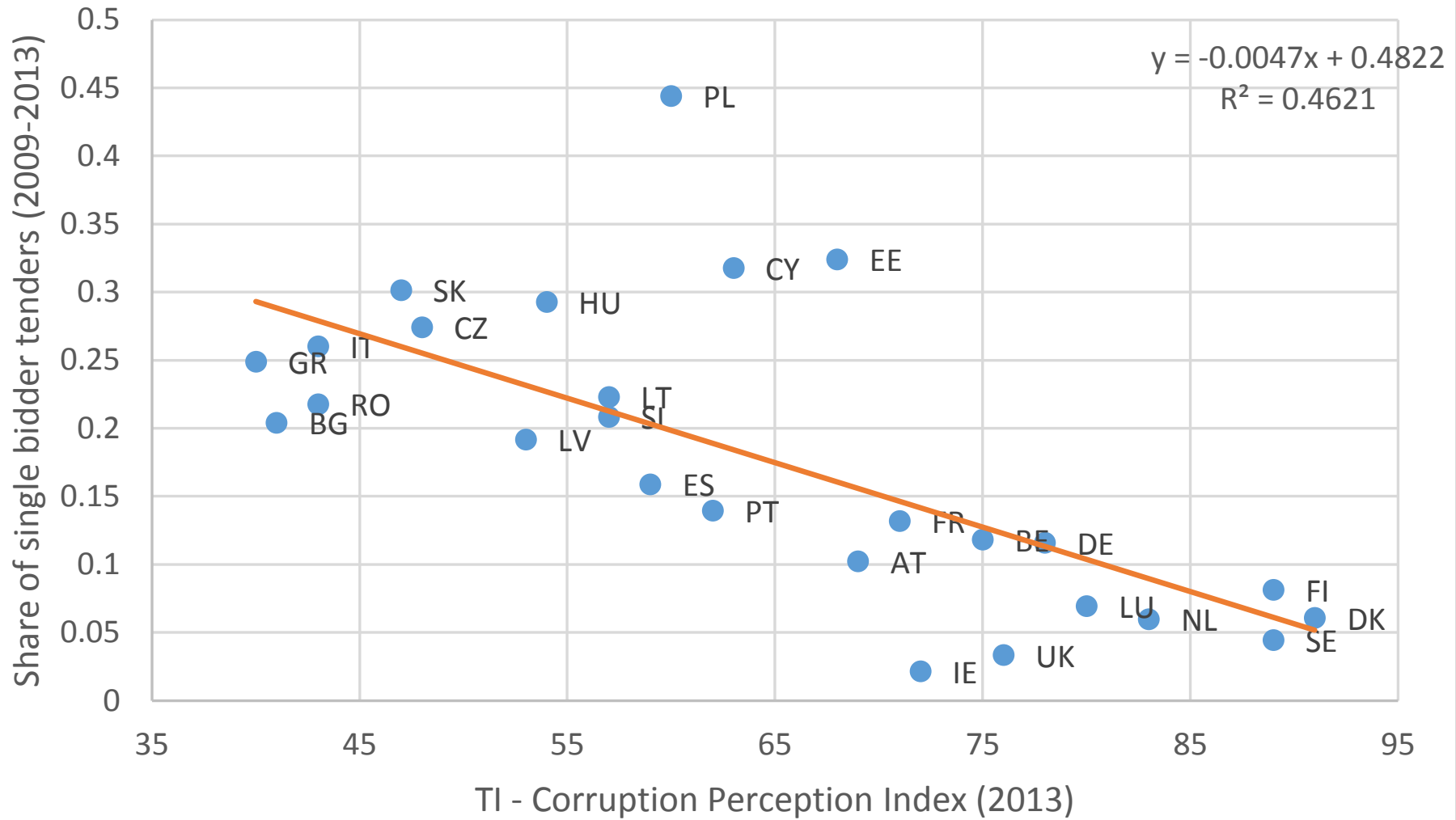


Number of bidders predicts prices

- Price savings by the number of bidders
- 543,705 contracts, EU27, 2009-2014



Single bidding correlates with perceptions



PART II – Applications

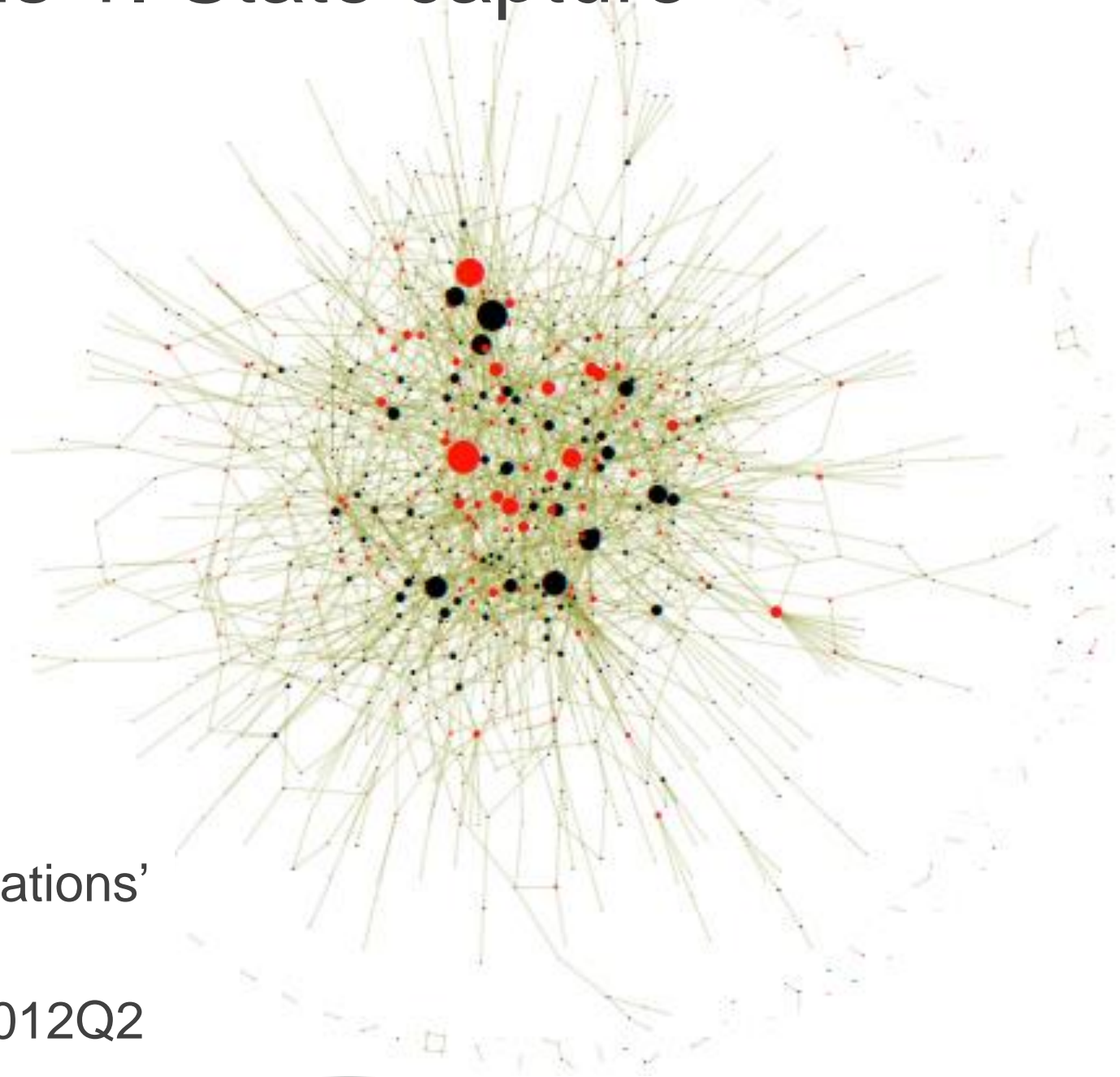


Potential applications

- 1. Identifying hotspots of corruption/collusion:** organisational networks, regions, sectors, etc.
- 2. Evaluating funding programmes:** e.g. European Union structural funds
- 3. Risk-based audit:** companies, public bodies, or contracts



Applications 1. State capture

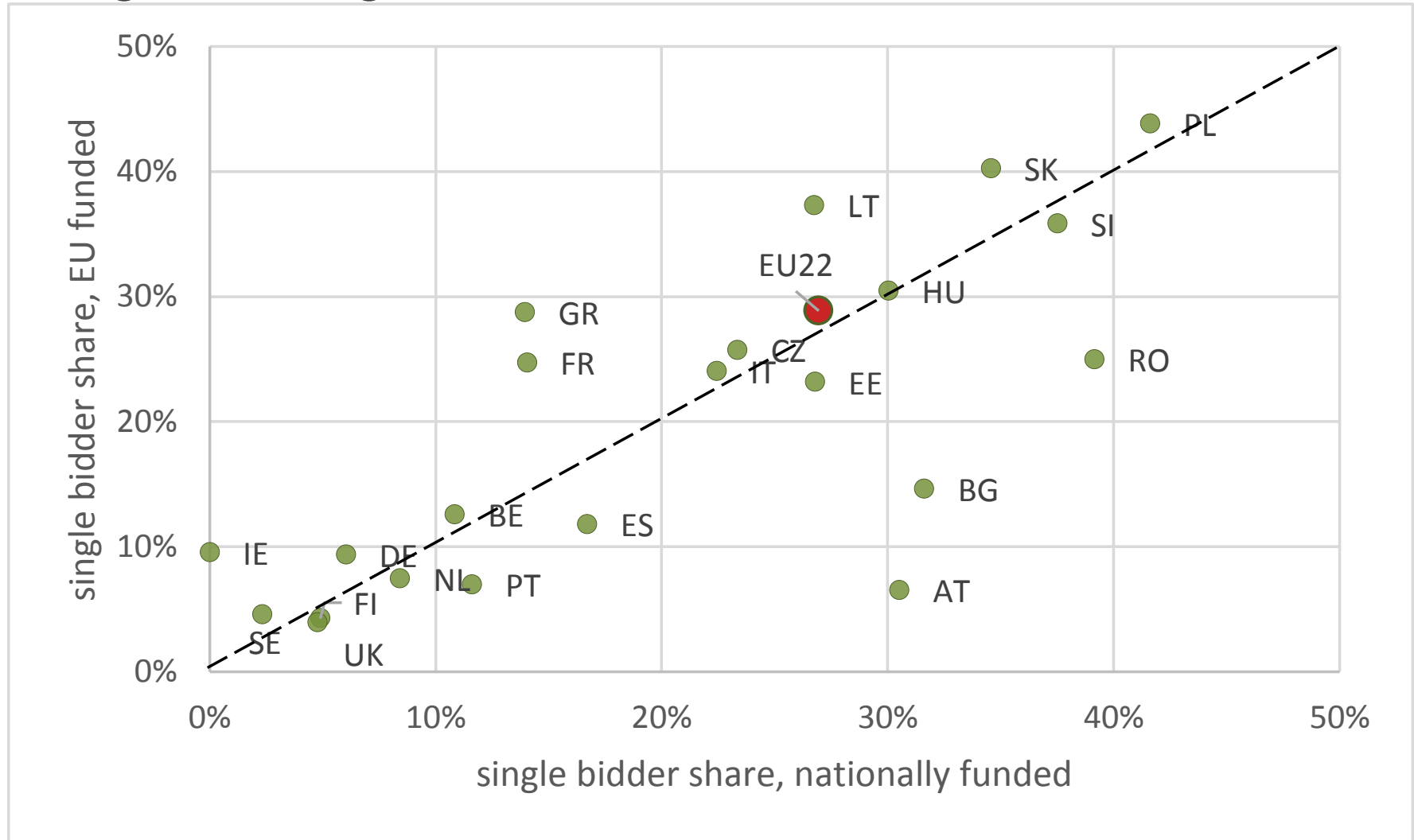


Captured organisations'
network

Hungary, 2011-2012Q2

Application 2. Monitoring EU Funds procurement

- EU23, 2009-2013
- Single bidding in EU Funds and non-EU Funds in PP



Potential applications for SEE countries

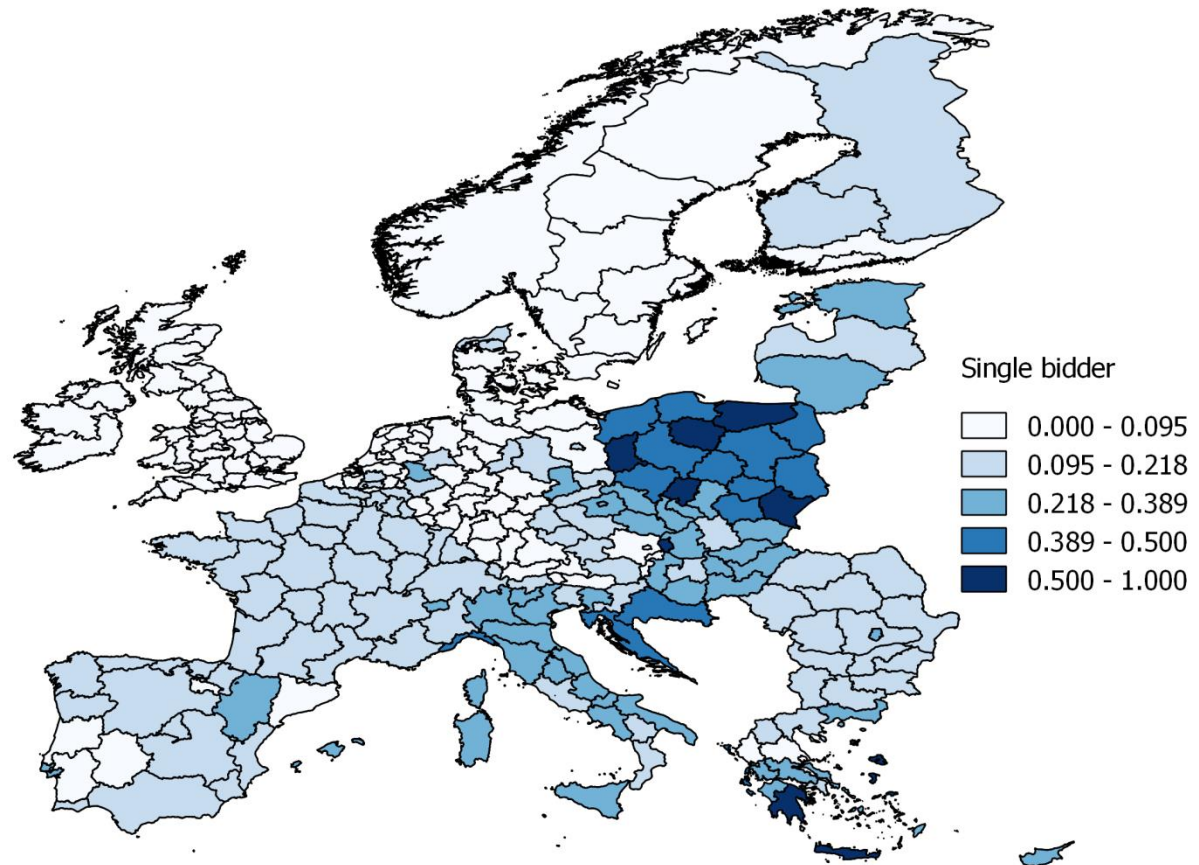
1. Low hanging fruits:

- data readily available in some SEE countries (TED and national datasets)
- indicators readily available

Potential applications in SEE

Simple risk indices
can be monitored
right away

- Single bidding
- Market shares
- Excessive spending on consultancy



Potential applications for SEE countries

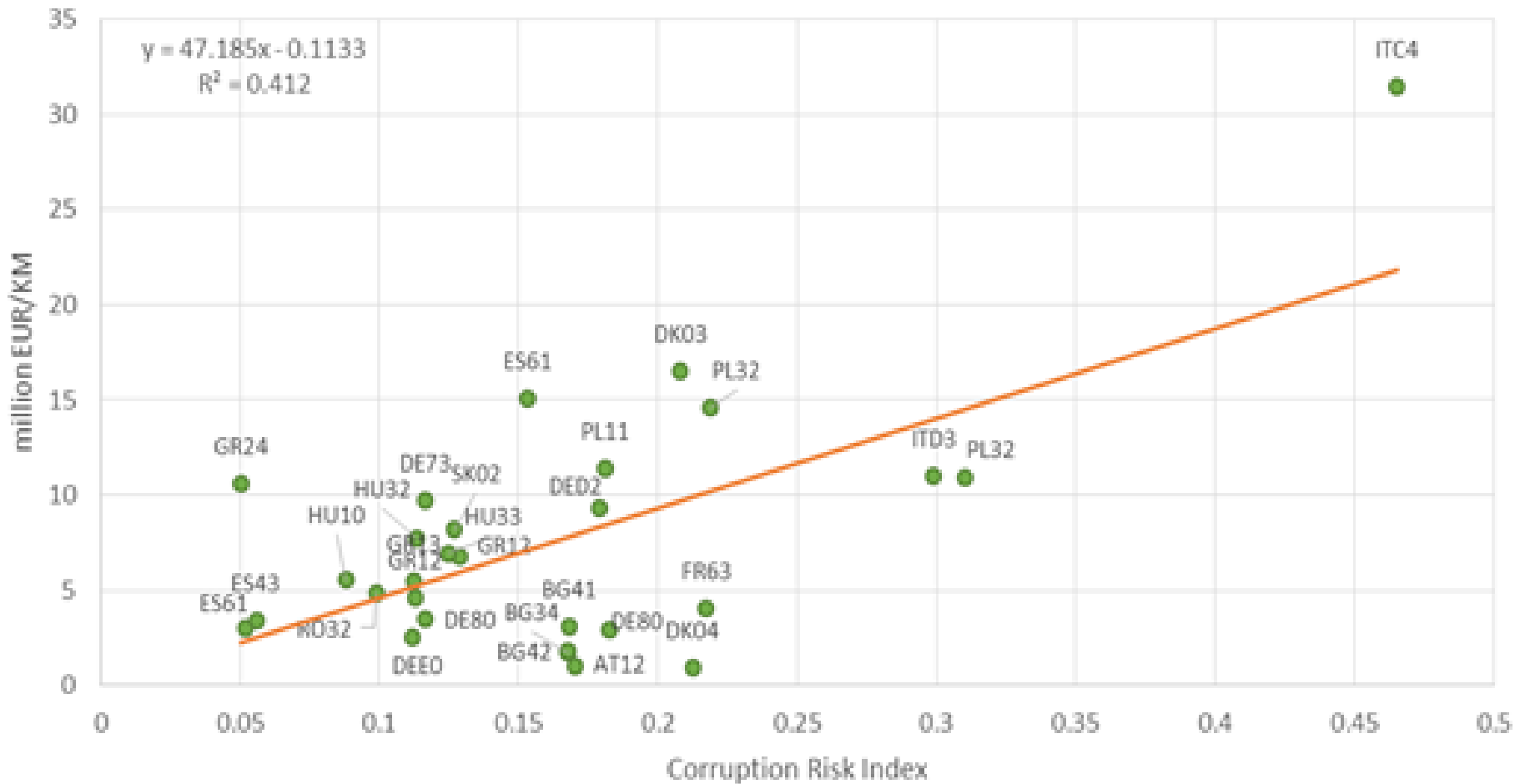
1. Low hanging fruits:

- data readily available in some SEE countries (TED and national datasets)
- indicators readily available

2. Invest into data collection

- Full procurement cycle (e.g. contract implementation!)
- Unit prices: simple metrics

Motorway unit prices&CRI

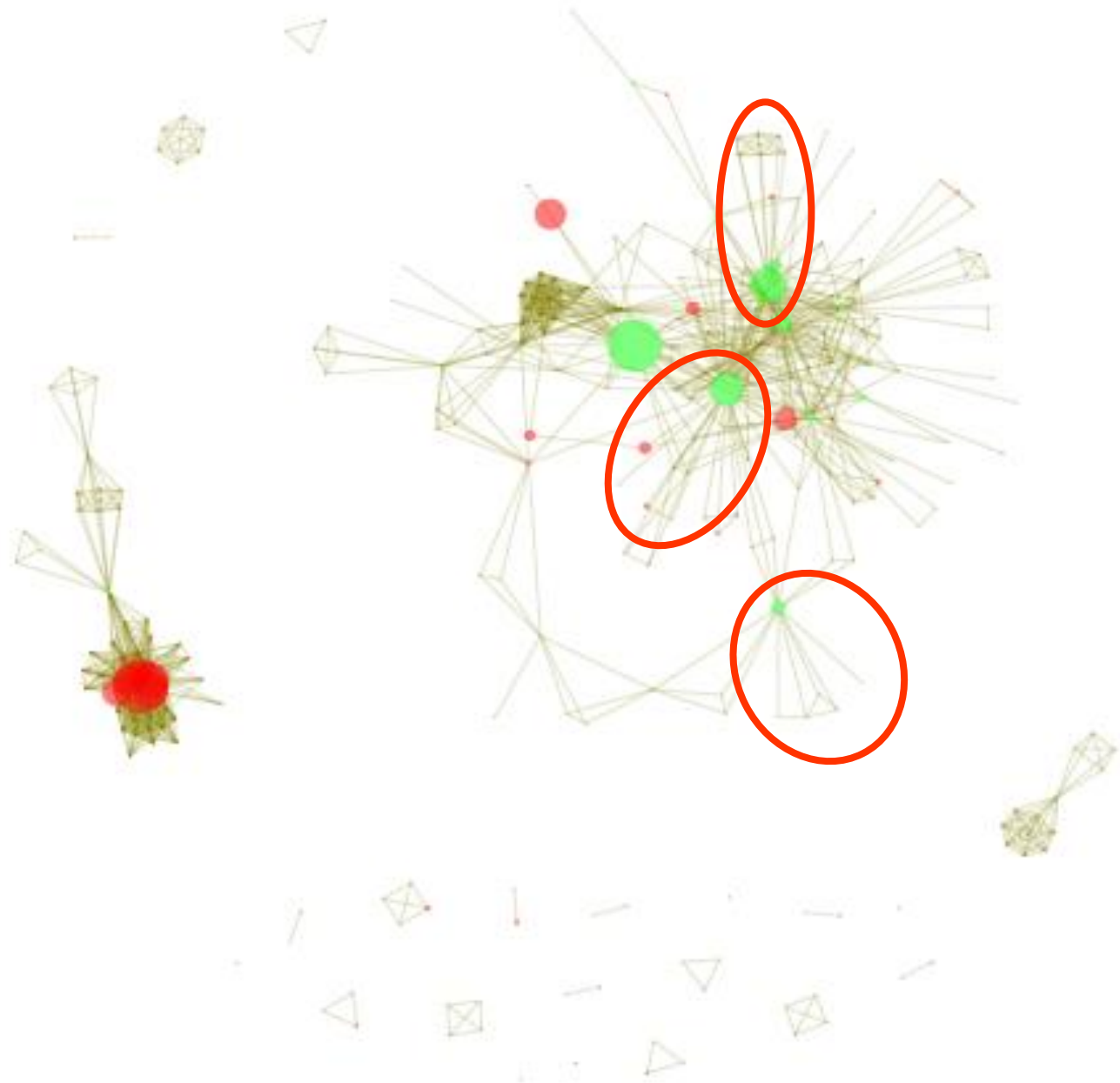


Potential applications for SEE

1. Low hanging fruits:
 - data readily available (TED)
 - indicators readily available
2. Invest into data collection
 - Full procurement cycle (e.g. contract implementation!)
 - Unit prices: simple metrics
3. Regularly use more advanced monitoring tools:
 - Cartels
 - CRI, etc...

Tracking risky co-bidding patterns

- HU, 2009
- Dense networks
- Many cutpoints
- **Cutpoints seem to benefit from position**



Further readings

Corruption Research Center Budapest: www.crcb.eu

Fazekas, M. and Tóth, I. J. (2014). *From corruption to state capture: A new analytical framework with empirical applications from Hungary*. CRC-WP/2014:01, Budapest: Corruption Research Centre.

Czibik, Ágnes; Fazekas, Mihály; Tóth, Bence; and Tóth, István János (2014), *Toolkit for detecting collusive bidding in public procurement. With examples from Hungary*. Corruption Research Center Budapest, CRCB-WP/2014:02.

Fazekas, M., Chvalkovská, J., Skuhrovec, J., Tóth, I. J., & King, L. P. (2014). *Are EU funds a corruption risk? The impact of EU funds on grand corruption in Central and Eastern Europe*. In A. Mungiu-Pippidi (Ed.), *The Anticorruption Frontline. The ANTICORRP Project*, vol. 2. (pp. 68–89). Berlin: Barbara Budrich Publishers.

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